AMENDMENTS TO THE DRAWINGS

Please attach Figure 1, attached herewith, to the end of the specification.

REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

Claims 1-63 and 81-92 were pending in this application when last examined.

Claims 1-47 and 81-91 were examined on the merits and stand rejected.

Claims 48-63 and 92 were withdrawn as non-elected subject matter. Applicants reserve the right to file a continuation or divisional application on any non-elected subject matter.

Claims 16 and 21 are amended to correct informalities.

Claim 1 is amended to clarify the claimed invention.

No new matter has been added.

On pages 2-3 of the Office Action, the specification was objected to. In order to overcome this objection, the specification has been amended to include a brief description of the drawings. Further, Figure 1 has been submitted. As noted by the Examiner, Figure 1 was present in the foreign and PCT applications and therefore submission of this figure does not constitute new matter.

In item 3 on page 3 of the Office Action, claim 16 was objected to for the noted informality. This claim has been amended and therefore this objection is overcome.

In item 4 on pages 3-4 of the Office Action, claims 1-47 and 81-89 were rejected under 35 U.S.C. §112, first paragraph, for new matter. In particular, claim 1 was considered to have new matter for the phrase "continuous planar optical waveguide". Without acquiescence the correctness of this rejection and merely to expedite prosecution, claim 1 is amended to recite "one planar optical waveguide". Support for such amendment can be found throughout the specification as filed.

Thus, this rejection is overcome.

OBVIOUSNESS REJECTIONS

In item 5 on pages 4-12 of the Office Action, claims 1-34, 38-40, 42-47, 81-84 and 86-91 were rejected under 35 U.S.C. § 103(a) as obvious over Neuschäfer et al. (WO 96/35940) in view of Coassin et al. (US 6,660,233).

Further, in item 6 on pages 12-13, claims 35-37 were rejected under 35 U.S.C. § 103(a) as obvious over Neuschäfer et al. (WO 96/35940) in view of Coassin et al. (US 6,660,233, of record), as applied to claim 1, and further in view of Hashimoto et al. (US 6,480,639).

Finally, in item 7 on pages 13-14, claims 41 and 85 were rejected under 35 U.S.C. § 103(a) as obvious over Neuschäfer et al. (WO 96/35940) in view of Coassin et al. (US 6,660,233).

Applicants respectfully traverse these rejections as applied to the amended claims. Applicants further note that all of these rejections recite Neuschäfer et al. in view of Coassin et al. and therefore are addressed together.

Applicants note that it is the purpose of the present invention to provide a high sensitivity device for location specific detection of multiple analytes.

Neuschäfer et al. teaches that "arrangements in which various specific binding partners are applied to a continuous wave guiding layer have the disadvantage that the excitation light excites all the fluorophore labeled molecules. Selection of measurement sites according to location is thus not possible. In addition, evanescently back-coupled fluorescence photons may contribute to the signal from the neighbouring dot and thus lead to measurements errors." (p. 5) This reference also teaches that the use of "separate wave guiding regions prevent cross-talk between luminescence signals from different samples. A high degree of selectivity and low error rates are achieved with this method." (p. 7, §4)

The combination of Neuschäfer et al. with Coassin et al. leads according to the Examiner to an array with more than one measurement area in the length and width directions on the

surface of a single planar waveguide. The Examiner considers use of a continuous wave guiding layer as a "non-preferred embodiment" of Neuschäfer et al.

However, Neuschäfer et al. explicitly describe use of several measurement areas on a continuous wave guiding layer as being disadvantageous.

Thus, Applicants respectfully submit that a skilled artisan would have no motivation to combine the cited references to arrive at the claimed invention. In other words, a person of skill in the art would not believe that arranging specific binding partners in a single wave guide layer would result in a device with high sensitivity. Thus, Applicants suggest that this rejection is untenable.

Further, as already mentioned in our previous argumentation, it is our understanding that the combination of Neuschäfer et al. with Coassin et al. does not lead to the present invention. Neuschäfer et al. describe a measurement cell comprising at least two discrete wave-guiding regions, wherein one measurement area is identical with one of said planar wave guiding regions. So the combination with Coassin et al. would lead to a two-dimensional arrangement of planar wave-guiding regions of each of the measurement area discrete from each other within a measurement cell. This arrangement would not have the miniaturization potential as well as reduced production costs reached by the present invention. Further, the limitation of one planar optical waveguide as shown in amended claim 1 would not be met.

The Examiner further argues that in view of Coassin et al. a linear array and a two-dimensional array structure are equivalent. We agree that a linear arrangement and a two-dimensional arrangement may be equivalent in term of spotting effort which is the purpose of Coassin et al. Both arrangements may also be otherwise equivalent but the skilled artisan in the field of the present invention is an expert in planar wave guide technology and array technology. The skilled artisan knows that the excitation light entering a planar wave guide has to be strictly oriented in a direction x perpendicular to a direction y in order to achieve optimal resonance

conditions and so that said light further propagates in the direction x within the planar wave guide. Thus, it is clear to the skilled artisan that x and y directions within a device comprising a planar wave guide are **not optically equivalent**.

We therefore do not agree with the assumption of the Examiner that both arrangements are equivalent in all terms and particularly not optically equivalent.

Also, Applicants note that the cited state of the art Neuschäfer et al. and Henron et al. already teaches two different solutions for a linear arrangement.

Neuschäfer et al. teaches a linear array in the y direction wherein one measurement cell comprises a linear array of discrete measurement areas made of discrete wave guiding regions parallel to each other in the y direction, whereas the linear array of Henron et al. consists of one measurement cell made of one wave guiding region comprising a linear array of measurement areas in the direction of propagation of the excitation light x. The state of the art thus confirms the non-equivalency of directions x and y.

Furthermore, the state of the art teaches there are several ways of modifying the optical structure of the sensor platform when changing the arrangement of the measurement areas. Thus, we also do not agree that such change only involves routine skill in the art.

Moreover, the skilled artisan knows that optical cross-talk associated with conventional macroscopic imaging of adjacent measurement areas possibly induces measurement errors decreasing usability of measurement device and methods. The skilled artisan, in rearranging from a one dimensional linear array into a two-dimensional array in a device based on the planar wave guide technology, would have taken the corresponding state of the art - and particularly Neuschäfer et al. - into account and would have been dissuaded to use a two-dimensional array of measurement areas on a single planar wave guide.

It is our understanding that a person skilled in the art would only be motivated to combine the state of the art if the object of the invention is thereby improved. However, the skilled artisan

in view of Neuschäfer et al. or Henron et al. would not have reasonably expected that an array with more than one measurement area in the length and width directions on the surface of a single planar waveguide would lead to a usable high sensitivity device. Instead, as Neuschäfer et al. teaches, such device can have low sensitivity.

Thus, Applicants note that these rejections are untenable as (1) Neuschäfer et al. indicates that if various specific binding partners are applied to a single wave guiding layer then such will have a low degree of selectivity, (2) the combination Neuschäfer et al. with Coassin et al., at a maximum, would lead one to create a cell comprising multiple planar wave guiding regions and not meet limitations of the claims, (3) there is no teaching or suggestion in the cited art of a two-dimensional array structure as directions x and y are not equivalent, and finally, (4) a skilled artisan understands that imaging of adjacent measurement areas can induce measurement errors and decrease feasibility of a measurement device. Thus, Applicants respectfully suggest that the above-noted rejections should be withdrawn, as applied to the amended claims.

CONCLUSION

In view of the foregoing amendments and remarks, the present application is in condition for allowance and early notice to that effect is hereby requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned attorney at the telephone number below.

Respectfully submitted,

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ATTACHMENTS

1. Figure 1